

5 **I CLAIM**

1. A method of processing an input data word containing a plurality of abutting input data values, said method comprising the steps of:

10 (i) performing one or more data processing operations upon said input data word and a further data word to generate an intermediate result data word containing a plurality of abutting intermediate result data values dependent upon said input data values and corresponding portions of said further data word, said one or more data processing operations being such that a corrupting result bit from a first result data value may extend into and change a value of a  
15 second result data value;

(ii) calculating an error correcting data word in dependence upon said input data word and said further data word, said error correcting data word having a value that represents any corrupting result bits that may be generated by said step of performing;

20 (iii) combining said intermediate result data word and said error correcting data word to remove any change of value produced by a corrupting result bit and to generate an output data word, said output data word containing a plurality of abutting output data values being those that would be generated if said one or more data processing operations were performed upon said  
25 plurality input data values and said corresponding portions of said further data word in isolation from one another.

2. A method as claimed in claim 1, wherein said one or more data processing operations include an addition operation.

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3. A method as claimed in claim 2, wherein said corrupting result bit is a lowest order bit of said first result data value changing a value of a highest order bit of said second result data value.

35 4. A method as claimed in claim 1, wherein said one or more data processing operations include a subtraction operation.

- 5 5. A method as claimed in claim 4, wherein said corrupting result bit is a lowest order bit of said first result data value changing a value of a highest order bit of said second result data value.
6. A method as claimed in claim 1, wherein said one or more data processing  
10 operations include a shift operation.
7. A method as claimed in claim 1, wherein said step of calculating includes performing an exclusive OR logical operation between said input data word and said further data word to generate an exclusive OR data word.
- 15 8. A method as claimed in claim 7, wherein said step of calculating includes performing an AND logical operation between said exclusive OR data word and a mask data word to generate said error correcting data word having bit values representing any corrupting result bits.
- 20 9. A method as claimed in claim 3, wherein said error correcting data word is subtracted from said intermediate result data word.
10. A method as claimed in claim 3, wherein said error correcting data word is  
25 added to said intermediate result data word.
11. A method as claimed in claim 9, wherein said step of combining includes shifting said intermediate result data word by one bit to divide said result data word by two.
- 30 12. A method as claimed in claim 1, wherein said input data values represent adjacent signal values within a stream of signal values being processed.
13. A method as claimed in claim 12, wherein said data values represent adjacent  
35 pixel values.

- 5 14. A method as claimed in claim 1, wherein said input data values have an input data value bit-width and may vary over a full range of values allowed by said input data value bit-width.
- 10 15. Apparatus for processing an input data word containing a plurality of abutting input data values, said apparatus comprising:
- 15 (i) processing logic operable to perform one or more data processing operations upon said input data word and a further data word to generate an intermediate result data word containing a plurality of abutting intermediate result data values dependent upon said input data values and corresponding portions of said further data word, said one or more data processing operations being such that a corrupting result bit from a first result data value may extend into and change a value of a second result data value;
  - 20 (ii) calculating logic operable to calculate an error correcting data word in dependence upon said input data word and said further data word, said error correcting data word having a value that represents any corrupting result bits that may be generated by said step of performing;
  - 25 (iii) combining logic operable to combine said intermediate result data word and said error correcting data word to remove any change of value produced by a corrupting result bit and to generate an output data word, said output data word containing a plurality of abutting output data values being those that would be generated if said one or more data processing operations were performed upon said plurality input data values and said corresponding portions of said further data word in isolation from one another.
- 30 16. A computer program product including a computer program for controlling a data processing apparatus to perform data processing in accordance with a method as claimed in claim 1.